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10/538231

SEQUENCE LISTING

<110> Ofer MANDELBOIM
Angel PORCADOR

<120> NK CELL RECEPTOR CONJUGATES FOR TREATING MALIGNANCIES

<130> 2488.019

<140> US 10/538,231
<141> 2005-06-09

<150> PCT/IL2003/001040
<151> 2003-12-09

<150> US 60/431,728
<151> 2002-12-09

<160> 14

<170> PatentIn version 3.1

<210> 1
<211> 488
<212> PRT
<213> Homo sapiens

<400> 1

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Ala Glu Pro His Phe Met Val Pro Lys Glu Lys Gln Val Thr Ile Cys
35 40 45

Cys Gln Gly Asn Tyr Gly Ala Val Glu Tyr Gln Leu His Phe Glu Gly
50 55 60

Ser Leu Phe Ala Val Asp Arg Pro Lys Pro Pro Glu Arg Ile Asn Lys
65 70 75 80

Val Lys Phe Tyr Ile Pro Asp Met Asn Ser Arg Met Ala Gly Gln Tyr
85 90 95

Ser Cys Ile Tyr Arg Val Gly Glu Leu Trp Ser Glu Pro Ser Asn Leu
100 105 110

Leu Asp Leu Val Val Thr Glu Met Tyr Asp Thr Pro Thr Leu Ser Val
 115 120 125

His Pro Gly Pro Glu Val Ile Ser Gly Glu Lys Val Thr Phe Tyr Cys
 130 135 140

Arg Leu Asp Thr Ala Thr Ser Met Phe Leu Leu Leu Lys Glu Gly Arg
 145 150 155 160

Ser Ser His Val Gln Arg Gly Tyr Gly Lys Val Gln Ala Glu Phe Pro
 165 170 175

Leu Gly Pro Val Thr Thr Ala His Arg Gly Thr Tyr Arg Cys Phe Gly
 180 185 190

Ser Tyr Asn Asn His Ala Trp Ser Phe Pro Ser Glu Pro Val Lys Leu
 195 200 205

Leu Val Thr Gly Asp Ile Glu Asn Thr Ser Leu Ala Pro Glu Asp Pro
 210 215 220

Thr Phe Pro Ala Asp Thr Trp Gly Thr Tyr Leu Leu Thr Thr Glu Thr
 225 230 235 240

Gly Leu Gln Lys Asp His Ala Leu Trp Asp His Thr Ala Gln Asp Pro
 245 250 255

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
 260 265 270

Pro Glu Phe Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
 275 280 285

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
 290 295 300

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
 305 310 315 320

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
 325 330 335

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln

340	345	350
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355	360	365
Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro		
370	375	380
Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr		
385	390	400
Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser		
405	410	415
Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr		
420	425	430
Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr		
435	440	445
Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe		
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465	470	475
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Gln Gln Thr Leu Pro Lys Pro Phe Ile Trp Ala Glu Pro His Phe Met		
35	40	45

Val Pro Lys Glu Lys Gln Val Thr Ile Cys Cys Gln Gly Asn Tyr Gly
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Ala Val Glu Tyr Gln Leu His Phe Glu Gly Ser Leu Phe Ala Val Asp
 65 70 75 80

Arg Pro Lys Pro Pro Glu Arg Ile Asn Lys Val Lys Phe Tyr Ile Pro
 85 90 95

Asp Met Asn Ser Arg Met Ala Gly Gln Tyr Ser Cys Ile Tyr Arg Val
 100 105 110

Gly Glu Leu Trp Ser Glu Pro Ser Asn Leu Leu Asp Leu Val Val Thr
 115 120 125

Glu Met Asp Pro Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro
 130 135 140

Pro Cys Pro Ala Pro Glu Phe Glu Gly Ala Pro Ser Val Phe Leu Phe
 145 150 155 160

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 165 170 175

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
 180 185 190

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 195 200 205

Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 210 215 220

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 225 230 235 240

Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
 245 250 255

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 260 265 270

Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 275 280 285

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 290 295 300

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 305 310 315 320

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
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Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
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<210> 3
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 <400> 3

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Asp Thr Pro Thr Leu Ser Val His Pro Gly Pro Glu Val Ile Ser Gly
 35 40 45

Glu Lys Val Thr Phe Tyr Cys Arg Leu Asp Thr Ala Thr Ser Met Phe
 50 55 60

Leu Leu Leu Lys Glu Gly Arg Ser Ser His Val Gln Arg Gly Tyr Gly
 65 70 75 80

Lys Val Gln Ala Glu Phe Pro Leu Gly Pro Val Thr Thr Ala His Arg
 85 90 95

Gly Thr Tyr Arg Cys Phe Gly Ser Tyr Asn Asn His Ala Trp Ser Phe
 100 105 110

Pro Ser Glu Pro Val Lys Leu Leu Val Thr Gly Asp Ile Glu Asn Thr
115 120 125

Ser Leu Ala Pro Glu Asp Pro Thr Phe Pro Asp Thr Trp Gly Thr Tyr
130 135 140

Leu Leu Thr Thr Glu Thr Gly Leu Gln Lys Asp His Ala Leu Trp Asp
145 150 155 160

Pro Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro
165 170 175

Ala Pro Glu Phe Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys
180 185 190

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
195 200 205

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
210 215 220

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
225 230 235 240

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
245 250 255

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
260 265 270

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
275 280 285

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu
290 295 300

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
305 310 315 320

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
325 330 335

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
 340 345 350

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
 355 360 365

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
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Lys Ser Leu Ser Leu Ser Pro Gly Lys
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<210> 4
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 <213> Homo sapiens

<400> 4

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Trp Val Ser Gln Pro Leu Glu Ile Arg Thr Leu Glu Gly Ser Ser Ala
 35 40 45

Phe Leu Pro Cys Ser Phe Asn Ala Ser Gln Gly Arg Leu Ala Ile Gly
 50 55 60

Ser Val Thr Trp Phe Arg Asp Glu Val Val Pro Gly Lys Glu Val Arg
 65 70 75 80

Asn Gly Thr Pro Glu Phe Arg Gly Arg Leu Ala Pro Leu Ala Ser Ser
 85 90 95

Arg Phe Leu His Asp His Gln Ala Glu Leu His Ile Arg Asp Val Arg
 100 105 110

Gly His Asp Ala Ser Ile Tyr Val Cys Arg Val Glu Val Leu Gly Leu
 115 120 125

Gly Val Gly Thr Gly Asn Gly Thr Arg Leu Val Val Glu Lys Glu His

130

135

140

Pro Gln Leu Gly Asp Pro Glu Pro Lys Ser Ser Asp Lys Thr His Thr
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Cys Pro Pro Cys Pro Ala Pro Glu Phe Glu Gly Ala Pro Ser Val Phe
 165 170 175

Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
 180 185 190

Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
 195 200 205

Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
 210 215 220

Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
 225 230 235 240

Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys
 245 250 255

Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
 260 265 270

Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
 275 280 285

Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val
 290 295 300

Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
 305 310 315 320

Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
 325 330 335

Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
 340 345 350

Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
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Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 370 375 380

<210> 5
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 <213> Homo sapiens

<400> 5

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Leu Gly Met Leu Val Ala Ser Cys Leu Gly Arg Leu Arg Val Pro Gln
 20 25 30

Ser Lys Ala Gln Val Leu Gln Ser Val Ala Gly Gln Thr Leu Thr Val
 35 40 45

Arg Cys Gln Tyr Pro Pro Thr Gly Ser Leu Tyr Glu Lys Lys Gly Trp
 50 55 60

Cys Lys Glu Ala Ser Ala Leu Val Cys Ile Arg Leu Val Thr Ser Ser
 65 70 75 80

Lys Pro Arg Thr Val Ala Trp Thr Ser Arg Phe Thr Ile Trp Asp Asp
 85 90 95

Pro Asp Ala Gly Phe Phe Thr Val Thr Met Thr Asp Leu Arg Glu Glu
 100 105 110

Asp Ser Gly His Tyr Trp Cys Arg Ile Tyr Arg Pro Ser Asp Asn Ser
 115 120 125

Val Ser Lys Ser Val Arg Phe Tyr Leu Val Val Ser Pro Ala Ser Ala
 130 135 140

Ser Thr Gln Thr Ser Trp Thr Pro Arg Asp Leu Val Ser Ser Gln Thr
 145 150 155 160

Gln Thr Gln Ser Cys Val Pro Pro Thr Ala Gly Ala Arg Gln Ala Pro
 165 170 175

Glu Ser Pro Ser Thr Ile Pro Val Pro Ser Gln Pro Gln Asn Ser Thr
180 185 190

Leu Arg Pro Gly Pro Ala Ala Pro Asp Pro Glu Pro Lys Ser Ser Asp
195 200 205

Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Phe Glu Gly Ala
210 215 220

Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
225 230 235 240

Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
245 250 255

Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
260 265 270

Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
275 280 285

Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
290 295 300

Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
305 310 315 320

Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
325 330 335

Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
340 345 350

Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
355 360 365

Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
370 375 380

Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
385 390 395 400

Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His

405

410

415

Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
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Gly Lys

<210> 6
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 <212> PRT
 <213> Homo sapiens

<400> 6

Met Gly Met Pro Met Gly Ser Leu Gln Pro Leu Ala Thr Leu Tyr Leu
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Leu Gly Met Leu Val Ala Ser Cys Leu Gly Arg Leu Arg Val Pro Ser
 20 25 30

Pro Ala Ser Ala Ser Thr Gln Thr Ser Trp Thr Pro Arg Asp Leu Val
 35 40 45

Ser Ser Gln Thr Gln Thr Gln Ser Cys Val Pro Pro Thr Ala Gly Ala
 50 55 60

Arg Gln Ala Pro Glu Ser Pro Ser Thr Ile Pro Val Pro Ser Gln Pro
 65 70 75 80

Gln Asn Ser Thr Leu Arg Pro Gly Pro Ala Ala Pro Asp Pro Glu Pro
 85 90 95

Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
 100 105 110

Phe Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
 115 120 125

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 130 135 140

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 145 150 155 160

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
165 170 175

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
180 185 190

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
195 200 205

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
210 215 220

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn
225 230 235 240

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
245 250 255

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
260 265 270

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
275 280 285

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
290 295 300

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
305 310 315 320

Ser Leu Ser Pro Gly Lys
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<210> 7
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<212> PRT
<213> Homo sapiens

<400> 7

Met Gly Met Pro Met Gly Ser Phe Gln Pro Leu Ala Thr Leu Tyr Leu
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Leu Gly Met Leu Val Ala Ser Cys Leu Gly Arg Leu Arg Val Pro Gln

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35	40	45
Arg Cys Gln Tyr Pro Pro Thr Gly Ser Leu Tyr Glu Lys Lys Gly Trp		
50	55	60
Cys Lys Glu Ala Ser Ala Leu Val Cys Ile Arg Leu Val Thr Ser Ser		
65	70	75
Lys Pro Arg Thr Val Ala Trp Thr Ser Arg Phe Thr Ile Trp Asp Asp		
85	90	95
Pro Asp Ala Gly Phe Phe Thr Val Thr Met Thr Asp Leu Arg Glu Glu		
100	105	110
Asp Ser Gly His Tyr Trp Cys Arg Ile Tyr Arg Pro Ser Asp Asn Ser		
115	120	125
Val Ser Lys Ser Val Arg Phe Tyr Leu Val Val Ser Pro Ala Asp Pro		
130	135	140
Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala		
145	150	155
Pro Glu Phe Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro Lys Pro		
165	170	175
Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val		
180	185	190
Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val		
195	200	205
Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln		
210	215	220
Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln		
225	230	235
Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala		
245	250	255

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
 260 265 270

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr
 275 280 285

Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser
 290 295 300

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
 305 310 315 320

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr
 325 330 335

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
 340 345 350

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
 355 360 365

Ser Leu Ser Leu Ser Pro Gly Lys
 370 375

<210> 8
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 <212> DNA
 <213> Homo sapiens

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 gccgtggaca gaccaaacc cctgagcggg attaacaaag tcaaattcta catcccgac 300
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 <212> DNA
 <213> Homo sapiens

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accatctgtt gccagggaat ttatggggct gttgaatacc agctgcactt tgaaggaagc	240
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gaccctgagg tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca	720
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caccaggact ggctgaatgg caaggagtac aagtgaagg tctccaacaa agccctccca	840

gcccccatcg agaaaacccat ctccaaagcc aaagggcagc cccgagagcc acaggtgtac	900
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aactacaaga ccacgcctcc cgtgctggac tccgacggct ccttcttctt ctacagcaag	1080
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 <212> DNA
 <213> Homo sapiens

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cagccccttg agattcgtac cctggaaggg tcttctgcct tctgccttg ctcttcaat	180
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